

FEDOROV, V.I., kand.tekhn.nauk; SIDEN, V.M.

Method for measuring temperatures in rotating machinery  
components. Energ.i elektrotekh.prom. no.4:32-34 O-D '62.  
(MIRA 16:2)

1. Institut teploenergetiki AN UkrSSR.  
(Turbines) (Temperature—Measurement)

SIDUN, V.M.

Study of local heat exchange in turbine lattices. Zbir. prats' Inst.  
tepl. AN URSS no.24:62-67 '62. (MIRA 16:3)  
(Gas turbines)

SIDUN, V.M. [Sydun, V.M.]

Investigation of heat exchange on the end surface of turbine channels.  
Dop. AN URSR no.1:78-81 '64. (MIRA 17:4)

1. Institut teploenergetiki AN UkrSSR. Predstavлено академиком AN Ukr  
SSR I.T. Shvetsom [Shvets', I.T.].

L 27877-65 EWT(1)/EWT(m)/EPP(n)-2 Pu-4 MM/GS

S/0000/64/000/000/0111/0113

ACCESSION NR: AT5004216

AUTHOR: Sidun, V. M. (deceased)

21  
20  
13+1

TITLE: Measurement of local heat fluxes in models of turbine channels

SOURCE: AN UkrSSR. Institut tekhnicheskoy teplofiziki. Teplofizika i teplo-  
tekhnika (Thermophysics and heat engineering). Kiev, Naukova dumka, 1964, 111-113

TOPIC TAGS: heat flux measurement, thermocouple, high temperature transducer

ABSTRACT: The heat-flux pickup described was developed at Institut teploenergetiki (Institute of Heat Power) AN UkrSSR. It comprises a rod of drawn tool steel 5 mm in diameter and 20 mm long, in the end of which are inserted chromel-copel thermocouples of 0.5 mm dia. wire. The construction is shown in Fig. 1 of the enclosure. The thermocouples were mounted with the aid of special guides in such a way that after installation the place where the emf was produced could be located accurate to 0.03 mm, corresponding to an approximate accuracy of 0.2%. The thermocouple emf was measured with a potentiometer. The preliminary calibration and the steps taken to ensure accuracy and reproducibility of the results are briefly described. The pickups were mounted on the end wall of the turbine-

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L 27877-65

ACCESSION NR: AT5004216

channel simulators and used to determine the local heat flux and the local heat transfer coefficients. It is stated in conclusion that such pickups can be used for various investigations of heat exchange processes in models of diverse heat apparatus. Orig. art. has: 1 figure and 3 formulas.

ASSOCIATION: Institut tekhnicheskoy teplofiziki AN UkrSSR (Institute of Technical Thermophysics, AN UkrSSR)

SUMBITTED: 10Aug64

ENCL: 01

SUB CODE: TD

NR REF SOV: 004

OTHER: 000

Card 2/3

L 27877-65

ACCESSION NR: AT5004216

ENCLOSURE: 01

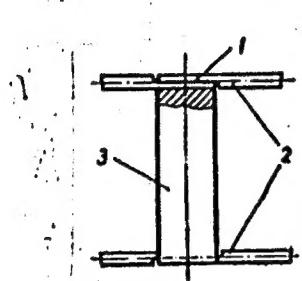


Fig. 1. Heat-flux pickup.

1 - Thermocouple junction, 2 - thermo-electrode leads,  
3 - pickup body.

Card 3/3

SHVETS, I.T.; SIDUN, V.M.; ROMANYUK, L.I.

Experimental investigation of thermal conductivity of soils  
used in hotbeds and greenhouses. Trudy Inst. tepl. AN URSR  
no.14:186-191 '58. (MIRA 12:4)  
(Soil temperature)

SIDUNOVA, O. I.,

"Study of Aging Kinetics of AL-4 Aluminum Casting Alloy." (Dissertation for Degree  
of Candidate for Technical Sciences) Min Higher Education USSR, Moscow Order of Labor  
Red Banner Higher Technical School imeni Bauman, Moscow, 1955

SO: M-1036 28 Mar 56

SIDORIN, I.I., professor; SIDUNOVA, O.I., inshener.

Investigating the kinetics of aging in Al-4 aluminum alloy  
castings. [Trudy] NFTU no.41:163-191 '55. (MLRA 9:10)

(Aluminum alloys--Metallography)

SIDUNOVA, O. I., Cand. Tech. Sci.

"Effect of the Diameter of Tensile-test Specimens on the Mechanical Properties of [Aluminum] Alloy AL4 in Ordinary and Isothermal Heat Treating," Termicheskaya obrabotka i prochnost' metallov i splavov; sbornik statey (Heat Treatment and Strength of Metals and Alloys; Collection Articles) Moscow, Mashgiz, 1958, 177 p.

It is shown that as the diameter of the specimens is increased, the tensile strength and elongation decrease, both with ordinary and isothermal heat treating. This seeming contradiction is explained by a favorable interaction between the cooling rate and thermal stresses in the case of the small-diameter specimens.

SOV/137-59-1-1497

Translation from: Referativnyy zhurnal. Metallurgiya, 1959, Nr 1, p 198 (USSR)

AUTHOR: Sidunova, O. I.

TITLE: The Effect of the Diameter of Rupture Specimens on the Mechanical Properties of the AL4 Alloy Subjected to Standard and Isothermal Heat Treatment (Vliyanie diametra razryvnykh obraztsov na mekhanicheskiye svoystva splava AL4 pri obychnoy i izotermicheskoy obrabotke)

PERIODICAL: V sb.: Term. obrabotka i prochnost' metallov i splavov. Moscow, Mashgiz, 1958, pp 47-52

ABSTRACT: The effect of the diameter (5-24 mm) of rupture specimens (S) on the mechanical characteristics of the AL4 alloy was investigated after the alloy had been heat-treated. It was established that during standard heat treatment (water quench from 535°C and aging in a salt bath at 185°C), as well as during isothermal heat treatment (quenching from a temperature of 535°C into a salt bath at 185°C followed by soaking therein), the  $\sigma_b$  and  $\delta$  values diminish as the diameter of the S is increased. It is pointed out that an optimal schedule of cooling exists which produces maximum hardening of the S ... the process of aging. Z.F.

Card 1/1

32026  
S/145/60/000/005/008/010  
D221/D301

18.7500  
AUTHORS:

D.A. Prokoshkin, Doctor of Technical Sciences, Professor, and O.I. Sidunova, Candidate of Technical Sciences

TITLE:

New data on thermal diffusion in the chromium-molybdenum system

PERIODICAL:

Izvestiya vysshikh uchebnykh zavedeniy. Mashinostroyeniye, no. 5, 1960, 101 - 105

TEXT:

The author describes the saturation of Mo with a series of elements, by thermal diffusion. Both sintered and cast Mo were used for the experiments. Spectral analysis showed no traces of Nb, Mn, Cr, Ti, V, Al and Fe in the sintered Mo. Its chemical examination revealed 0.02 % of Si, and 0.005 % of S. Technically pure metals were employed for the impregnation. Saturation with Cr was made in a vacuum oven. The phase diagram of the Cr-Mo system shows a continuous series of solid solutions at all temperatures. Investigation above 1000°C indicated a region with a spe-

layer obtained by diffusion

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32026  
S/145/60/000/005/008/010  
D221/D301

New data on thermal ...

cial structure and properties. The etching of sections exhibited a bright layer at the surface of the chromium-coated molybdenum, separated from the core containing polyhedron grains. The bright layer was divided into two zones. The external zone was thicker and contained grains directed parallel to the diffusion flow. The second zone, clearly separated from the first, showed no grain-boundaries. The results of tests for microhardness show a gradual increase of hardness with the depth and a sharp rise at the limit of etching. The authors explain it by the change in the structure of the diffused layer. The data reveals that in the Cr-Mo system there are special structural states instead of a continuous series of solid solutions. The authors state that this is confirmed by X-ray analysis and other investigations. There are 4 figures and 6 references. 1 Soviet-bloc and 5 non-Soviet-bloc. The 4 most recent references to the English-language publications read as follows: High Temperature Technology, Ed. in chief I.E. Campbell, 1956; R.R. Freeman and I.Z. Briggs, Jet Propulsion, v. 27, no. 2, 1957; L. Northeot, Molybdenum, 1956; M. Hansen, Constitution of binary alloys, 1958.

Card 2/3

PROKOSHKIN, D.A.; SIDUNOVA, O.I.

Investigating the system chromium - molybdenum by the thermal diffusion  
method. Issl. po zhuroproch. splav. 10:229-232 '63. (MIRA 17:2)

L 46115-66 EWP(e)/ENT(m)/T/IMP(t)/ETI/ENP(k) IJP(c) JD/HN/JG  
ACC NR: AP6031379 (N) SOURCE CODE: UR/0145/68/000/007/0116/0119

AUTHOR: Prokoshkin, D. A. (Doctor of technical sciences; Professor);  
Sidunova, O. I. (Candidate of technical sciences; Docent)

ORG: Moscow Higher Technical School im. N. E. Bauman (MVTU)

TITLE: Ordered solid solution in the chromium-molybdenum system

SOURCE: IVUZ. Mashinostroyeniye, no. 7, 1966, 116-119

TOPIC TAGS: chromium molybdenum alloy, chromium coated molybdenum, chromium molybdenum solid solution, solid solution ordering metal coating

ABSTRACT: Specimens of cast and forged molybdenum were diffusion coated with chromium, packed in chromium powder, and held at 1350-1600°C for 10-25 hr. The diffusion layer was found to consist of three zones: the external zone, with columnar grains oriented in the direction of diffusion flow; the (hardest) middle zone, with similar grains which could hardly be etched and had equal atomic contents of chromium and molybdenum; and the inner zone, with polyhedral grains. An analysis of each zone showed that the external zone is a solid solution with variable concentration of components and a body-centered cubic lattice, while the middle zone has a tetragonal lattice. X-ray structural analysis of annealed alloy powders revealed the presence of tetragonal lattice lines and other odd lines which disappear under the effect of deformation. The appearance of a tetragonal lattice in chromium-molybdenum alloys may

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UDC: 669.2.01

L 46115-66

ACC NR: AP6031379

be associated with ordering of the solid solution. The appearance of the lines of a tetragonal lattice in all the alloys studied could be caused by dendritic heterogeneity. Orig. art. has: 4 figures. [ND]

SUB CODE: 11/ SUBM DATE: 02Mar66/ ORIG REF: 002/ ATD PRESS: 5087

Card 212 LC

ALESHANOV, F., mayor intenantskoy sluzhby; SIDURA, M., inzh.-kapitan-  
leytenant

Skillfully use the ship's stock. Tyl i snab. Sov. Voor. Sil  
(MIRA 15:1)  
21 no.10:49-51 0 '6'.  
(Ships—Maintenance and repair)

PAVLYUCHKOVA, M.L.; SASHIN, I.V.; . IDORIN, Yu.V.

Results of testing the performance of a preliminary oil refining unit having spherical and horizontal settlers in fields of the Petroleum Production Administration of the Association of the Bayly Petroleum Industry. Nefteprom. delo no.10.34-39 '65. (MIRA 1961)

1. Neftepromyslovye upravleniye "Baylyneft" i Ufimskiy neftyanoy nauchno-issledovatel'skiy institut.

SOV/5-33-1-25/25

AUTHORS: Sidyachenko, A.I. and Alekseyeva, E.Ye

TITLE: The Brachiopods and the Basic Problems of Stratigraphy of Famennian Deposits in the Central and South-Eastern Parts of Kara-Tau Ridge (Brakhiopody i osnovnyye voprosy stratigrafi i faunisticheskikh otlozheniy tsentral'noy i yugo-vostochnoy chastei khrebita Kara-Tau)

PERIODICAL: Byulleten' Moskovskogo obshchestva ispytateley prirody, (t. del geologicheskiy, 1956, Vol 35, Nr 1, pp 159-160 (USSR)

ABSTRACT: The authors sum up the report they read on October 11 1957 in the Paleontological Section of the Moscow Society of Naturalists (Abstract Nr 21). In the cross-section of the Famennian deposits of Central and South-Eastern Kara-Tau, four groups of fauna, replacing in time each other, could be identified. The identification of these groups fixed four biostratigraphic levels. The authors submit a list of fossils belonging to each of these levels.

USCOMM-DC-60477

Card 1/1

ALEKSEYEVA, R.A.; SIDYACHENKO, A.I.

Biostratigraphy of Famennian sediments in the central and  
southeastern Kara-Tau (southern Kazakhstan). Izv. vys. ucheb.  
zav.; geol. i razv. 2 no.2:15-29 F '59. (MIRA 12:10)

1. Paleontologicheskiy institut AN SSSR.  
(Kara-Tau--Geology, Stratigraphic)

SIDYACHENKO, A. I.

Plicatifera Menneri, a new species of upper Famennian productids.  
(MIRA 13:6)  
Paleont. zhur. no. 4:143-144 '59.

1. Institut geologii i geofiziki Sibirsckogo otdeleniya  
Akademii nauk SSSR.  
(Kara-Tau--Brachiopoda, Fossil)

SIDYACHENKO, A.I.

Use of variation statistics in studying species of the genus  
Cyrtospirifer. Biul. MOIP. Otd. biol. 64 no.6:162 N-D '59.  
(MIRA 13:5)

(PALEONTOLOGICAL RESEARCH) (BIOMETRY)

SIDYACHENKO, A.I.

Using variational statistics for studying *Crytospirifer* from  
Famennian sediments in the Kara-Tau. *Geol i geofiz.* no.12:30-  
47 '60. (MIRA 14:5)

1. Institut geologii i geofiziki Sibirskogo otdeleniya AN SSSR,  
Novosibirsk. (Kara-Tau--Brachiopoda, Fossil)

SIDYACHENKO, A.I.

Dmitria, the upper Devonian subgenus of cyrtospiriferids. Paleont.  
(MIRA 14:6)  
zhur. no.2:80-85 '61.

I. Institut geologii i geofiziki Sibirs'kogo otdeleniya AN SSSR.  
("Ta--Tau--Brachiopoda, Fossil)  
(Kazakhstan--Brachiopoda, Fossil)

BRONGULEYEV, V.V.; SIDYACHEJKO, A.I.

More about the detailed biostratigraphy of Famenian sediments  
in the central Kara-Tau. Izv.vys.ucheb.zav.; ~~pol.~~ i razv. 4  
no.8:11-32 Ag '61. (MIRA 14:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut geofizicheskikh  
metodov razvedkii Sibirskoye otdeleniye AN SSSR, Institut  
geologii i geofiziki.

(Kara-Tau--Paleontology, Stratigraphic)

SIDYACHENKO, A.I.

Zonal correlation of the Famennian stage of the Kara-Tau Range, western spurs of the Tien Shan, and the western part of central Kazakhstan based on brachiopods. Dokl. AN SSSR 140 no.5:1153-1162 0 '61. (MIRA 15:2)

1. Predstavлено академиком А.А.Трофимуком.  
(Tien Shan-Geology, Stratigraphic)  
(Kazakhstan-Geology, Stratigraphic)

SIDYACHENKO, Aleksandr Ivanovich; BEZNOSOVA, G.A., otv. red.;  
KOTLYAREVSKAYA, P.S., red. izd-va; SIMKINA, G.S., tekim  
red.

[Spiriferids and the stratigraphy of Famennian sediments in  
the central and southeastern parts of the Kara-Tau] Spiriferi-  
ridy i stratigrafiia famenskikh otlozhenii Tsentral'nogo i  
Iugo-Vostochnogo Karatau. Moskva, Izd-vo Akad. nauk SSSR,  
1962. 151 p. (MIRA 15:7)

(Kara-Tau--Spirifers, Fossil)

SIDYACHENKO, A. I.

Dissertation defended in the Geological Institute for the academic  
degree of Candidate of Geologo-Mineralogical Sciences:

"Brachiopodes (Families Cyrtospiriferidae and Delthyrididae) and the  
Stratigraphy of Famennian Deposits of the Central and Southeast Karatau."

Vestnik Akad Nauk No. 4, 1963, pp. 119-145

ALIMSEIEVA, R.Ye.; BETENITINA, O.A.; VOZHENIKOVA, T.F.; GRATSIANOVA, R.T.;  
DUBATOLOV, V.N.; YAKOV, Ye.A.; ZABAROV, V.A.; IVANOVSKIY, A.B.;  
SIDYACHEVSKO, A.I.; BUL'KOV, N.P.; IVAGNOVA, Ye.I.; OLEK, A.M.;  
SANS, V.N.; TESANOV, Yu.I.; FURSTIKO, A.V.; KHOVETOVSKIY, V.V.;  
YUFREY, O.V.

Corresponding Member of the Academy of Sciences of the U.S.S.R.  
Boris Sergeevich Sokolov; 1914 - ; on his 50th birthday. Geol.  
(MIRA 18:2)  
i Geofiz. no.8:140-147 '64

SIDYACHENKO, A.I.; KANYGIN, A.V.

Stratigraphic position of the Krivaya Luka stage of the  
Siberian Platform. Dokl. AN SSSR 161 no.1:187-189 Mr '65.  
(MIRA 18:3)

1. Institut geologii i geofiziki Sibirskogo otdeleniya AN SSSR.  
Submitted November 9, 1964.

SIDYACHENKO, A.I.; KANYGIN, A.V.

Stratigraphy of Orliovian sediments in the Omilevka Mountains  
(north-east of the U.S.S.R. Geol. i geofiz. no. 3:154-155 (1966)  
(MIRA 13:6)  
1. Institut geologii i geofiziki Sibirskogo otdeleniya AN SSSR,  
Novosibirsk.

SIDYAK, A.Ye., inzhener.

~~On the article "Increase cross sections of haulageways."~~ Bezop. (MIRh 10:4)  
truda v prom. 1 no.9:74-75 & '57.

.. Stalinskij Sovet narodnogo khozyaystva.  
(Mine engineering) (Mine haulage)

SIDYAK, A.Ya.

Repeated use of steel supports in development workings. Ugol'  
Ukr. 3 no.9:24-26 S '59. (MIRA 13:2)  
(Mine timbering)

## USSR/Chemistry - Chloride of lime

FD-2736

Card 1/1 Pub. 50 - 17/20

Author : Sidyakin, A. I.

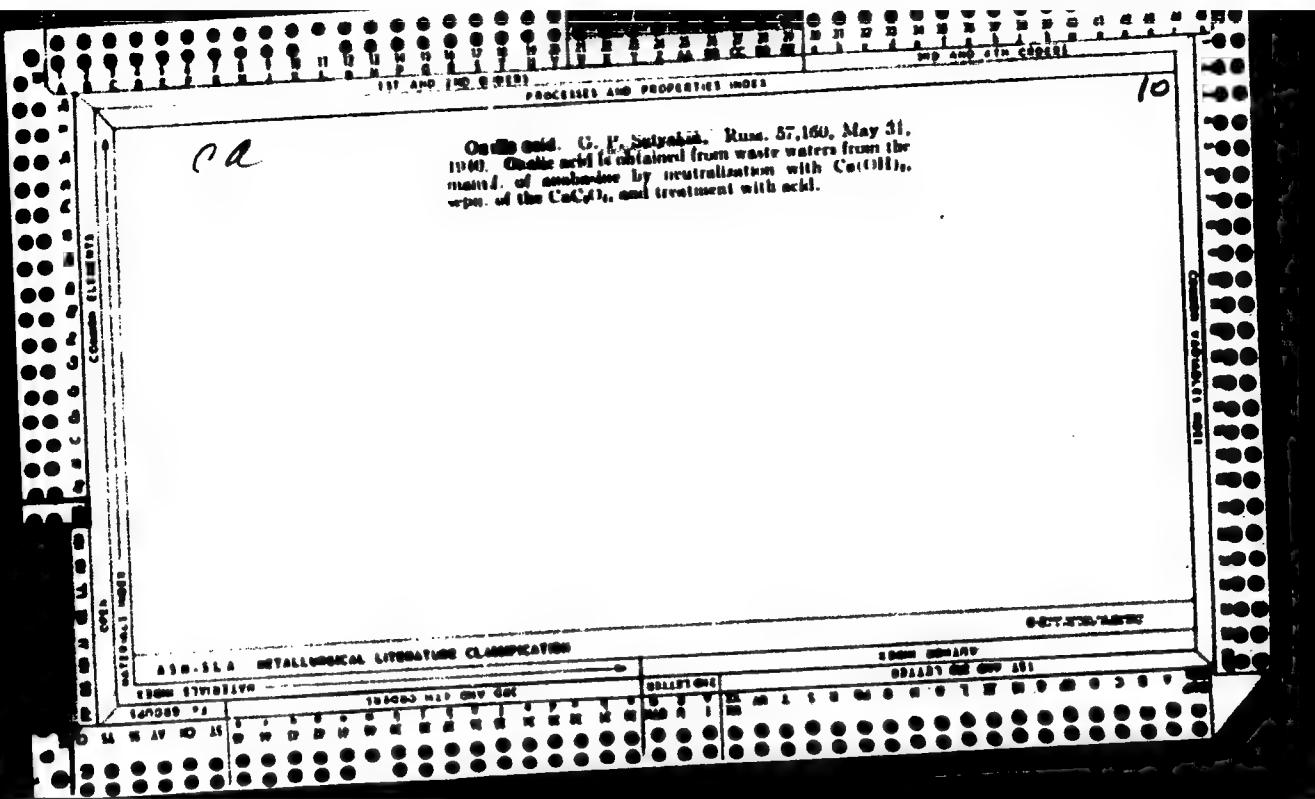
**Title** : Improvement of the operation of Bakman [Backman?] chambers.

Periodical : Khim. prom. No 5, 301-302, Jul-Aug 1955

**Abstract** : Outlines improvements in the operation of chambers in which chlorination of calcium hydroxide is carried out at the Okhta Chemical Combine.

APPROVED FOR RELEASE: 08/23/2000

CIA-RDP86-00513R001550520005-8"



BUYEVERCIA, YE. N., SIDYAKIN, G. P., TUTULOV, A. V.

Wine and Wine Making - Uzbekistan

Bentonites and clays of Uzbekistan. Vin. SSSR 12 no. 3, 1952.

Monthly List of Russian Accessions, Library of Congress, June 1952. Unclassified.

ULYANOV

Chemical Abst.  
Vol. 48 No. 5  
Mar. 10, 1954  
Organic Chemistry

The alkaloids of *Haplophyllum perforatum*, *H. pedicellatum*, *H. dubium*, *H. bucharicum*, and *H. versicolor*. I. S. Yunusov and G. P. Sidiyakin (Acad. Sci. Uzbek, Tashkent). *J. Gen. Chem. U.S.S.R.* 22, 1103-8 (1952) (Engl. translation).—See *C.A.* 47, 8094f. H. L. H.

MF  
1-26-54

SIDYAKIN, G. P. and YUNUSOV, S. Yu.

"Structure of the Alkaloid Haplophine," Dokl. AN Uz. SSR, No. 12, 1953,  
pp 22-24

Haplophine and skimmianine were extracted from the roots of *Haplophyllum*  
pedicellatum with dichloroethane. Haplophine was found to have the structure:  
4, 8-dimethoxy-2,2-furanoquinoline. (RZhKhim, No 18, 1954)

SO: Sum. No. 568, 6 Jul 55

SLOVAKOV, G. P.

"Alkaloids From *Iaplophyllum*." Cand Chem Sci, Inst of Chemistry, Acad Sci Uzbek SSR, Tashkent, 1955. (KL, No 9, Feb 55)

SO: Sum. No. 631, 26 Aug 55-Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (14)

Sidorkin GR

Methods of *Heptaptychus* species. II. S. Yu. Yurchenko  
 V. P. Sidorkin. Zhar. Obrab. Khim. 23, 2000-10  
 (1987). C.A. 107, 1988. Eleven species of *Heptaptychus* which were examined contained alkaloids, indicating that other species are probably also alkaloid-bearers. Haplosporangium isolated from *H. pedicellatum* is identical with rufagazine (4,8-dimethoxy-2,3-furanocoumarine) (cf. Berzaghi, et al., C.A. 39, 4076). Three alkaloids were isolated from leaves of *H. didymum*, as follows. Extrn. of the leaves with some small stems and buds (40 kg.) with  $(\text{CH}_3\text{Cl})_2$ - $\text{NH}_2\text{OH}$ , followed by treatment of the ext. with aq.  $\text{H}_2\text{NCO}_2\text{H}$  gave 25 g.  $\text{Et}_2\text{O}$ -sol. and 60 g.  $\text{CHCl}_3$ -sol. alkaloids. The  $\text{Et}_2\text{O}$ -sol. material recrystd. from  $\text{MeOH}$ , then  $\text{EtOH}$ , gave 20 g. dubamine,  $\text{C}_9\text{H}_{11}\text{O}_2\text{N}$ , m. 185-6°,  $[\alpha]_D^{25} -73.1^\circ$  ( $\text{Me}_2\text{CO}$ ). The alkaloid,  $\text{C}_{11}\text{H}_{12}\text{O}_2\text{N}(\text{OMe})(\text{OH})(\text{O}_2\text{C}\text{H}_3)$ , contains 10.4%  $\text{MeO}$  groups; astralide, decomp. 148-50°;  $\text{HCl}$  salt, m. 170-1°; methiodide, m. 211-12°. The  $\text{CHCl}_3$  fraction ground with  $\text{MeOH}$  gave 3 g. dubamine, while the ext. treated with  $\text{HCl}$  gave 22 g.  $\text{HCl}$  salts, which were converted to free bases and extd. with petr. ether, leaving behind 3 g. dubamine,  $\text{C}_9\text{H}_{11}\text{O}_2\text{N}$ , or  $\text{C}_{11}\text{H}_{12}\text{O}_2\text{N}(\text{OMe})(\text{O}_2\text{C}\text{H}_3)$ , m. 132-3° (from  $\text{Me}_2\text{CO}$ );  $\text{HCl}$  salt, m. 196-0°; nitro  $\text{E}$ , m. 170-7°; picrate, m. 153-0°; methiodide, m. 153-4°. The  $\text{Et}_2\text{O}$ -petr. ether another liquor after evapn. and chilling gave some dubamine,  $\text{C}_{11}\text{H}_{12}\text{N}(\text{O}_2\text{C}\text{H}_3)$ , m. 90-7° (froz. petr. ether and  $\text{MeOH}$ );  $\text{HCl}$  salt, m. 201-2°; nitro  $\text{E}$ , m. 157-8°. Redissolving dubamine with  $\text{HCl}$  in the presence of phloroglucinol and heating it thus 4 hrs. in a sealed tube at 140-50° gave a phenolic substance, m. 212-14°, identified probably as 3,4-dihydroxyacridine. Treated with  $\text{CH}_3\text{N}_3$ , this gave the di- $\text{Me}$  ether, m. 189.0°; picrate, m. 17-18°. Thus dubamine is probably 3,6-dimethyl-4-hydroxyacridine. G. M.

YUNUSOV, S.Yu., akademik; AKIMOV, S.T.; SIDYAKIN, G.P.

Study of alkaloids extracted from pabularia and hyscicum trilobium.  
Dokl. AN Uz. SSR no.7:23-25 '57. (MIRA 11:5)

1. Institut khimii rastitel'nogo syr'ya i khlopka AN UzSSR.  
2. AN UzSSR (for Yunusov).  
(Alkaloids)

SIDYAKIN, G.P.; YESKAIROV, M.; YUNUSOV, S.Yu., akademik

Alkaloids of *Haplophyllum foliosum* Vved. Structure of dubinidine.  
Dokl. AN Uz. SSR no. 13:27-29 '58. (MIRA 11:9)

1. Institut khimii rastitel'nykh veshchestv AN UzSSR. 2. AN UzSSR  
(for Yunusov).  
(Dubinidine)

SIDYAKIN, G.P.; YMSKAIROV, M.; YUNUSOV, S.Yu., akademik

Alkaloids of *Haplophyllum foliosum* Vved. Structure of dubinidine.  
Dokl. AN Uz.SSR no.9:1'-18 '58. (MIREA 11:12)

1. AN UzSSR (for Yunusov). 2. Institut khimii rastitel'nykh  
veschchestv AN UzSSR.  
(Dubinidine)

SHAKIROV, T.; SIDYAKIN, G.P.; YUMUSOV, S.Yu., akademik

Alkaloids from seeds of *Maplophyllum perforatum*. Dokl. AN Uz.SSR  
no.6:28-30 '59. (MIRA 12:9)

1. Institut khimii rastitel'nykh veshchestv AN UzSSR. 2. AN  
UzSSR (for Yumusov). (Alkaloids)

SIDYAKIN, G.P.; BESSENOVA, I.A.; YUNUSOV, S.Yu.

Alkaloids of seeds of *Haplophyllum perforatum*: Perforin. Dokl.  
AN Uz.SSR no.10:33-35 '59 (MIRA 13:3)

1. Institut khimii rastitel'nykh veshchestv AN UzSSR, 2. Chlen-  
korrespondent AN SSSR (for Yumusov).  
(Alkaloids)

5.3900

77414  
SOV/79-30-1-75/78

AUTHORS:

Sidakin, G. P., Yeskairov, M., Yunusov, S. Yu.

TITLE:

Alkaloids of the Haplophyllum Foliosum Vved.  
Structure of Dubinidine

PERIODICAL:

Zhurnal obshchey khimii, 1960, Vol 30, Nr 1, pp 338-  
345 (USSR)

ABSTRACT:

This is a continuation of the investigation of the genus Haplophyllum A. Juss. (family Rutaceae) (Yunusov, S. Yu., Sidakin, G. P., Zhur. Obshchey Khim., 22, 1055 (1952); 25, 2009 (1955); Doklady Akad. Nauk UzSSR, 12, 15 (1950)). The authors studied the alkaloids of the species Haplophyllum foliosum Vved. (from its stem, leaves, and green seeds). Four alkaloids were isolated: dubinidine (which was first obtained from Haplophyllum dubium Eng. Kor. -- see the reference cited above), skimmianine, and two new alkaloids called by the authors "foliosine" (foliozin) (Doklady Akad. Nauk

Card 1/8

Alkaloids of the Haplophyllum Foliosum Vved.  
Structure of Dubinidine

77414

SOV/79-30-1-75/78

UzSSR, 2, 21 (1957) and "foliosidine" (foliozidin) (ibid., 5, 23 (1958)). Dubinidine was precipitated from aqueous solution of the alkaloids (this solution was obtained by treating the chloroform extracts of *H. foliosum* with sulfuric acid) with gaseous  $\text{NH}_3$ .

The precipitate was dissolved in acetone and converted into the hydrochloride (mp 195-196°,  $[\alpha]_{\text{D}}^{18}$  (-53.92°)).

Pure dubinidine (mp 132-133°,  $[\alpha]_{\text{D}}^{26.5}$  (-62.95°)) was obtained by addition of concentrated  $\text{NH}_4\text{OH}$  to aqueous suspension of its hydrochloride. Its ultraviolet spectrum is shown in the figure below, along with spectrum of dihydroflindersine (which has a pyranoquinoline structure).

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Alkaloids of the Ikipopan High Polylete  
Vved. Structure of Dubinidine

77414  
SOV/79-30-1-75/78

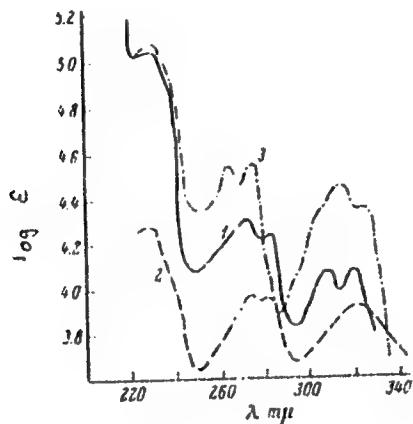


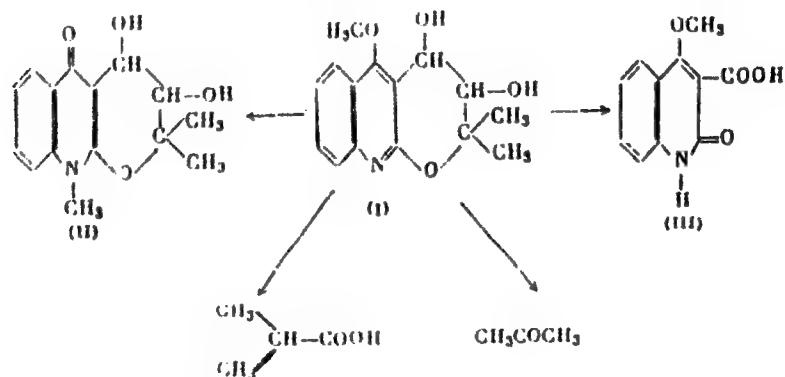
Figure. Ultraviolet absorption spectra. (1) dubinidine; (2) dihydroflindersine; (3) 4-methoxyquinoline-2.

Card 3/8

Alkaloids of the Hypopyllium Following  
Vved. Structure of Dubinidine

77414  
SOV/79-30-1-75/78

Decarboxylation, iodomethylation, oxidation (with  $\text{KMnO}_4$ , chromic, and periodic acids) etc., have proven the structure of dubinidine to be identical with (I) in the figure below, i.e., with 2,2-dimethyl-3,4-dioxy-5-methoxy- $\alpha$ , $\beta$ -dihydropyranoquinoline.



Card 4/8

Alkaloids of the *Haplophyllum Foliosum*  
Vved. Structure of Dubinidine

77414  
SOV/79-30-1-75/78

The following derivatives of dubinidine were prepared and investigated: hydrobromide (mp 197-198°); hydroiodide (mp 161-162°,  $[\alpha]_D^{18} (-47.32^\circ)$ ); nitrate (mp 176-177°,  $[\alpha]_D^{22} (-52.39^\circ)$ ); methiodide mp 153-154° which, upon addition of alcoholic alkali, gave isodubinidine, compound (II) in the figure above (mp 214-215°,  $[\alpha]_D^{25} (+21.05^\circ)$ ); diacetylubinidine (mp 108-109°,  $[\alpha]_D^{19} (-47.70^\circ)$ ). Oxidation with  $\text{KMnO}_4$  led to an aldehyde and then to the optically inactive dictamninic acid (III in the figure above). Skimmianine was separated from the other two alkaloids (the solid mixture was obtained from the chloroform extracts of the solution which was left after precipitation of dubinidine by triturating the mixture in acetone, which dissolves foliosine and foliosidine). The mixture of the two latter compounds was purified by subsequent addition of 10%  $\text{KMnO}_4$ .

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Alkaloids of the *Haplophyllum Foliosum*  
Vved. Structure of Dubiolidine

77414  
SOV/79-30-1-75/78

HCl and ammonia and extraction with chloroform (followed by distillation of the latter). The residue was dissolved in methanol and acidified with alcoholic HCl. The optically inactive foliosine hydrochloride (mp 253-254°) fell out after addition of threefold amount of acetone to the cooled solution and was converted to foliosine by addition of 25% NH<sub>4</sub>OH (mp 188-189°). The following foliosine derivatives were prepared: hydrobromide (mp 249-250° (decomp.)); hydroiodide (mp 225-226° (decomp.)); nitrate (mp 170-171.5° (decomp.)); methiodide (mp 210-211°); and perchlorate (mp 229-231° (decomp.)). Its formula was found to be: C<sub>15</sub>H<sub>10</sub>O(NCH<sub>3</sub>)(CH<sub>2</sub>O<sub>2</sub>).

The alkaloid residue isolated from the acetone solution, which was left after precipitation of foliosine, contained mainly folisidine, C<sub>17</sub>H<sub>23</sub>O<sub>5</sub>N, mp 141-142° and [α]<sub>D</sub><sup>25</sup> (+41.62°). Its more detailed formula was found to be C<sub>15</sub>H<sub>15</sub>O<sub>2</sub>(NCH<sub>3</sub>)(OCH<sub>3</sub>)(OH)<sub>2</sub>.

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Alkaloids of the Haplophyllum Foliosum  
Vved. Structure of Dubinidine

77414  
SOV/79-30-1-75/78

The ultraviolet spectrum (in alcohol) has the following maxima:  $\lambda_{\text{max}}^{234}$  (log  $\epsilon$ , 4.94); 252 (log  $\epsilon$ , 4.92); 324 (log  $\epsilon$ , 3.98); 234 m  $\mu$  (log  $\epsilon$ , 3.84) Abstracter's Note: Two maxima  $\lambda_{\text{max}}^{234}$  are

given in the article. The following derivatives: were prepared: hydrobromide (mp 167-168°); hydrochloride (mp 162-164°); foliosidine picrate (mp 182-183°); and diacetylfoliosidine (mp 129-130°,  $[\alpha]_{D}^{18}$  (+14.95°)). There is 1 figure; and 14 references, 7 Soviet, 5 German, 1 U.K., and 1 U.S. The U.S. and U.K. references are: G. Sidney, A. F. Smith, E. C. Horning, J. Am. Chem. Soc. 79, 2239 (1957); R. F. C. Brown, J. J. Hoobs, L. K. Huges, E. Ritchie, Austral. J. Chem., 7, 4, 348 (1954).

ASSOCIATION: Institute of Chemistry of Plant Substances, Academy  
Card 7/8 of Sciences of the UzbekSSR (Institut khimii rastitel'

Alkaloids of the Haplophyllum Foliosum  
Vved. Structure of Dubinidine

77414  
SOV/79-30-1-75/78

nykh vestchestr Akademii nauk Uzbekskoy SSR)

SUBMITTED: October 29, 1958

Card 8/8

SIDYAKIN, G. P.; BESSONOVA, I. A.; PASTUKHOVA, V. I.; YUNUSOV, S. Yu.

Alkaloids Haplophyllum. Part 3: Structure of dubinidine and  
dubamine. Zhur. ob. khim. 32 no.12:4091-4096 D '62.  
(MIRA 16:1)

1. Institut khimii rastitel'nykh veshchestv AN Uzbekskoy SSR.

(Alkaloids) (Dubinidine)

FAKHRUTDINOVA, I.M.; SIDYAKIN, G.P.; YUNUSOV, S.Yu.

Alkaloids from *Haplophyllum folosium*. *Haplopholin*. *Uzb. khim.*  
zhur. 7 no.4:41-43 '63. (MIRA 16:10)

1. Institut khimii rastitel'nykh veshchestv AN UzSSR.

BESSONOVA, I.A.; SIDYAKIN, G.P.; YUNUSOV, S.Yu.

Alkaloids of *Haplophyllum dubium*. Structure of dubinine. Zhur. ob. khim. 34 no.1:347-351 Ja '64. (MIRA 17:3)

1. Institut khimii rastitel'nykh veshchestv AN UzSSR.

Journal of Org. Chem., Vol. 30, 1965, p. 1060.

17-Substituted Phollicosidin. Part II: Structure of phollicosidin.  
Kol'ko, et al. Zh. Khim. i Khim. Prilozhenii, 1965, 18:6.

U. Institut Khimii rastvorimyykh veshchestv AN UzSSR.

SIVAKOV, P.

"Alkaloids of Haplophyllum perforatum, H. pedicellatum, H. dubium, H. bucharicum, H. versicolor. I." (p. 1055)

SO: Journal of General Chemistry, (Zhurnal Obshchei Khimii), 1952, Vol. 22, No. 6

ACCESSION NR: AT4017004

S/3057/63/000/000/0148/0153

AUTHOR: Tikhomirov, V. B.; Shigorina, I. I.; Sidyakin, P. V.

TITLE: Gas-flame atomization of plastics onto large metal and concrete surfaces

SOURCE: Zashchitnye pokrytiya v atomnoy tekhnike (Shielding in nuclear engineering); sbornik statey. Moscow, Gosatomizdat, 1963, 148-153

TOPIC TAGS: atomization, plastic deposition, atomic reactor shielding, shielding, nuclear reactor, atomic pile shielding, atomic reactor, nuclear shielding

ABSTRACT: Gas-flame atomization is the best method for obtaining shieldings of thermoplastic materials. The present investigation worked out methods for gas-flame atomization on construction materials. (See Fig. 1 in the Enclosure.) It was found that three 15-20 mm layers of MS-25 lacquer should be applied to metal or concrete surfaces, which are first cleaned of rust and dirt. Defects in the concrete should first be filled with a cement-polyethylene compound (water:cement: polyethylene 1:3:1), after which the material is moistened periodically for 10 days. Each layer of plastic is dried for 1-2 hours at 18-20C. The model UPN-4 VNIIAvtogen sprayer can be used for gas-flame atomization. For polyethylene coating on metal, the GLN-4 burner moves at a speed of 1-1.5 m/min. The con-

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ACCESSION NR: AT4017004

sumption of compressed air (2 atm) is 0.2 cu. m/min. and that of acetylene is 0.5 cu m/hr. The unit price for 1 sq. m of metal surface coating is 7-8 rubles. The problem of obtaining a shielding of the lowest possible porosity can be resolved by addition of graphite to the polyethylene. Orig. art. has: 3 figures.

ASSOCIATION: None

SUBMITTED: 00

DATE ACQ: 20Feb64

ENCL: 01

SUB CODE: MT, NP

NO REF Sov: 002

OTHER: 000

Card 2/3

ACCESSION NR: AT4017004

ENCLOSURE: 01

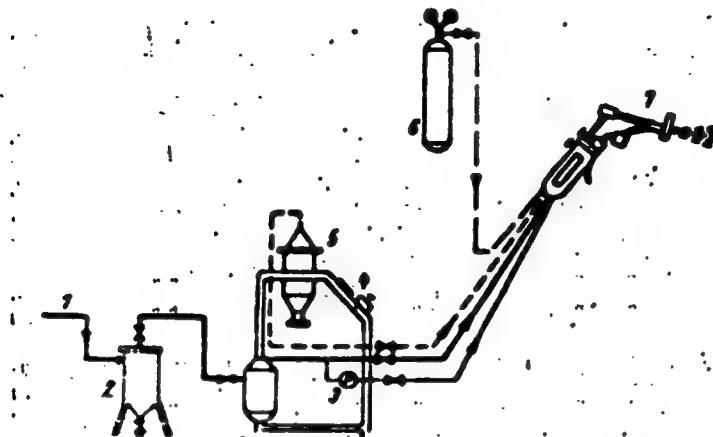


Fig. 1. Diagram of installation for gas-flame plastic spraying (thick line - compressed air for spraying; thin line - compressed air; thick dash line - acetylene; thin dash line - polyethylene powder suction)  
1 - from compressor, 5-6 atm; 2 - oil-water separator; 3 - reducer;  
4 - UPN unit; 5 - feeder tank; 6 - acetylene; 7 - GLN-4 burner

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SIDYAKIN, S. A.

DECEASED

1963/1

c. 1962

FUEL & ENGINEERING

See ILC

L 54683-65

ACCESSION NR: AP5010061

UR/0143/65/000/003/0001/0006  
621.318.001.57

5  
B

AUTHOR: Sidyakin, V. F. (Engineer)

TITLE: Simulating nonlinear electromagnetic equipment

SOURCE: IVUZ. Energetika, no. 3, 1965, 1-6

TOPIC TAGS: electromagnetic equipment, scale model simulation, mathematical simulation

ABSTRACT: Methods of simulating nonlinear emic equipment (magnetic amplifiers, stabilizers, frequency changers, magnetized-shunt transformers, peak transformers, etc.) are discussed. These three methods are examined: (1) The scale-model simulation ensures the similarity of the processes in steel but not the similarity of the leakage fluxes; the necessity for making a special magnetic frame and the impossibility of varying the airgaps, cross-section, and length of the magnetic circuit are shortcomings of this method; (2) Replacing a

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L 54683-65  
ACCESSION NR: AP5010061

complicated magnetic circuit by electrical circuits ("Elektrichestvo," no. 5, 1953) has the important advantage of simulating various apparatus with a set of standardized elements (steel-core and air-core choke coils); the impossibility of simulating such apparatus where a constant magnetic flux is distributed over a branched magnetic circuit is held as a disadvantage of this method; (3) The analog-computer simulation can cope with any configuration of the magnetic circuit and with other difficulties; however, the time scale is slow, and the measurement of effective and mean voltage values is cumbersome with this method. On the whole, the first method is rejected, the third is considered acceptable, and the second is recommended. Orig. art. has: 3 figures, 4 formulas, and 1 table.

ASSOCIATION: Ivanovskiy energeticheskiy institut (Ivanovo Power-Engineering Institute

SUBMITTED: 04Apr64

ENCL: 00

SUB CODE: EC, EE

NO REF SOV: 007

OTHER: 000

*JW*  
Card 2/2

SIDYKIN, Vyačeslav Fedorovich, assistant

Harmonic analysis using an analog computer. Izv.vys.ucheb.zav.,  
elektromekh. 8 no.8 907-909 '65.

(MIRA 18:10)

S. Ivavovskiy energeticheskly institut.

SIDYAKIN, V.F.

Measuring current and voltage transformer. Izv. vys. ucheb.  
zav.; prib. 8 no.5:22-23 '65. (MIRA 18:10)

1. Ivanovskiy energeticheskiy institut imeni Lenina. Rekomendovana  
kafedroy teorii osnov elektrotehniki i elektroizmereniy.

SOV/159-48-6-4/29

AUTHORS: Romankevich, I.N. and S. Iyakin, I.G.  
TITLE: Electrical Properties of Amorphous Selenium with Iodine  
Impurity (Elektricheskiye svoystva amorfного selena s  
primes'yu iod'a)

PERIODICAL: Izvestiya Vysshikh Uchebnykh Zavedeniy, Fizika,  
1958, Nr 6, p. 25-32 (USSR)

ABSTRACT: The paper reports studies of the electrical conductivity,  
its temperature and frequency dependences and the thermo-  
electric power of amorphous selenium with various  
amounts of iodine. Pure amorphous selenium powder from  
the Shchekino factory was used to prepare the samples.  
The samples were prepared by applying a pressure of  
30000 atm. This pressure was used in order to obtain  
material whose density is equal to the density of  
amorphous selenium produced by melting (4.2 g/cm<sup>3</sup>).  
Iodine was introduced in the form of powder which was  
purified by several sublimations in vacuo. Each sample  
was in the form of a plate 2.1 x 1.1 cm in area and  
0.15 - 0.2 cm thickness. Aquadag electrodes were used.  
In addition to the series of samples prepared from  
powder, the authors also produced samples of pure

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SOV/139-58-6-4/29

**Electrical Properties of Amorphous Selenium with Iodine Impurity**

amorphous selenium and amorphous selenium with iodine by melting in evacuated ampoules. The electrical conductivity of  $\sigma$  of selenium without iodine was measured using a d.c. amplifier. The value of  $\sigma$  of samples with iodine was found, employing the usual potentiometric method. The temperature dependence of  $\sigma$  was measured between 20 and 100°C. The frequency dependence of the electrical resistance at  $10^4$  -  $10^8$  c/s was obtained, using the apparatus shown schematically in Fig 2. This apparatus included a high-frequency oscillator coupled by  $L_C$  to a circuit which included a valve (tube) voltmeter (KV); resistance of the samples was deduced from their losses in a capacitor  $C$ . The thermoelectric power of pure amorphous selenium was measured using the apparatus shown in Fig 3; this apparatus included a potentiometer and a ballistic galvanometer. The thermoelectric power of amorphous selenium with iodine was measured in the usual way. The electrical conductivity of pure selenium and selenium with: 0.5, 1, 3 and 5% of iodine at 20°C is given

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SOV/139-58-6-4/29

Electrical Properties of Amorphous Selenium with Iodine Impurity  
in Table 2. The electrical conductivity of pure amorphous selenium was of the order of  $10^{-12} \text{ ohm}^{-1} \text{ cm}^{-1}$  at 20°C and rose rapidly on introduction of iodine, reaching  $\sim 10^{-5} \text{ ohm}^{-1} \text{ cm}^{-1}$  when 5% of iodine was added. Table 4 shows that the frequency of measurement affects strongly the value of the resistance of the pure amorphous selenium and amorphous selenium with iodine. The resistance of both pressed and melted samples decreases strongly with frequency. The temperature dependence of the electrical conductivity of amorphous selenium with iodine is given in Table 5. It is found that the conductivity of selenium with iodine increases fairly rapidly with temperature. in contrast to the conductivity of crystalline hexagonal selenium, which rises only slightly on heating. It is difficult to draw final conclusions from the temperature dependence of the electrical conductivity since crystallisation of selenium occurs during the process of measurement. The room temperature electrical conductivity was found to be 10 to 100 times higher after a series of measurements of the temperature dependence of the electrical

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SOV/159-58 6-4/29

## Electrical Properties of Amorphous Selenium with Iodine Impurity

conductivity. Comparison of the electrical conductivity of selenium samples prepared by pressing and those prepared by melting in evacuated sealed ampoules showed that their initial properties were of the same order. The thermoelectric power  $\alpha$  was also measured; for pure amorphous selenium it was equal to 1.1 mV/deg. The temperature dependence of the thermoelectric power  $\alpha$  was obtained for samples of amorphous selenium with iodine. The sign of the thermoelectric power indicated that pure selenium and selenium with iodine have hole conductivity. The results of measurement of the thermoelectric power at various temperatures are given in Table 6 (in mV/deg) which includes also the values of the carrier density  $n$  (in  $\text{cm}^{-3}$ ). Table 6 shows that the values of  $\alpha$  are 1.5 to 2 times higher in amorphous selenium with iodine than in crystalline selenium with similar amounts of iodine at the same temperature. Table 6 shows also that the value of  $\alpha$  decreases and that of  $n$  increases with temperature. This contradicts the results obtained by

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SOV/139-58-6-4/29

Electrical Properties of Amorphous Selenium with Iodine Impurity  
other authors. When measurements of thermoelectric power were repeated at room temperature after tests at higher temperatures, the initial value of  $\alpha$  was never obtained. The following conclusions are drawn by the authors: (a) amorphous selenium is a semiconductor and its properties are retained when it crystallises because the properties of crystalline selenium are governed by its short-range order; (b) if it is assumed that, in general, the properties of crystalline and amorphous selenium are similar, then the laminar structure of selenium is confirmed by the observed frequency dependence of its electrical resistance, weak binding of the halogen impurity with the selenium lattice and considerable decrease of resistance of selenium on the addition of iodine. There are 5 figures, 6 tables and 10 references of which 7 are Soviet, 2 are translations

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SOV/139-58-6-4/29

Electrical Properties of Amorphous Selenium with Iodine Impurity  
from English into Russian and 1 Dutch.

ASSOCIATION: Kiyevskiy Politekhnicheskiy Institut (Kiyev  
Polytechnical Institute)

SUBMITTED: 29th March 1958

Card 6/6

SOV/120-58-6-31/32

AUTHORS: Altayskiy, Yu. M., Yezhov, N. M. and Sidyakin, V. G.

TITLE: A Metallic Stop-Cock for Vacuum Installations (Metallichесkiy kran dlya vakuумных установок)

PERIODICAL: Pribory i tekhnika eksperimenta, 1958, Nr 6, p 119 (USSR)

ABSTRACT: The stop-cock described in this paper is small and convenient in use. It may be used both on the vacuum pump line or on a high vacuum line. A sectional drawing of the valve is shown in Fig.1. The valve consists of a metallic rod covered by a vacuum rubber tube. The rod has 2 channels along its axis 2, each of which ends in a hemispherical gap. The ends of the rod can be given the shape most useful for the particular application. The figure shows the valve in an open position. In order to close the valve the hemispherical gap is closed by means of the vertical bolt shown in the figure.

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SOV/120-58-6-31/32

A Metallic Stop-Cock for Vacuum Installations

The valve has been used for over 3 years at pressures as low as  $10^{-5}$  -  $10^{-6}$  mm Hg. A table is given of suitable dimensions for the various parts of the valve under different conditions. There is 1 figure and 1 table.

ASSOCIATION: Kiyevskiy politekhnicheskiy institut (Kiyev Polytechnical Institute)

SUBMITTED: December 30, 1957.

Card 2/2

SIDYAKIN, V.G.

Diffusion of gold into selenium. Inzh.-fiz. zhur. no.11:110-112  
N '58. (MIRA 12:1)

1. Politekhnicheskiy institut, g. Kiyev.  
(Gold) (Selenium) (Diffusion)

SOV/139-59-1-21/3<sup>4</sup>

24(3)  
AUTHORS: Sidyakin V.G., Altayskiy Yu.M.  
TITLE: Electrical Properties of Selenium with a Cadmium Impurity  
(Elektricheskiye svoystva selena s primes'yu kadmiya)  
PERIODICAL: Izvestiya Vysshikh Uchebnykh Zavedeniy, Fizika,  
1959, Nr 1, pp 120-123 (USSR)

ABSTRACT: The temperature dependence of the electrical conductivity, the thermoelectric power and the integral photosensitivity of specimens of hexagonal selenium with 0.5, 1, 2, 3, 4 and 6% cadmium impurity were studied and the results are now reported. The specimens were prepared as follows. Amorphous selenium 99.9% pure was finely ground and then mixed with a similar cadmium powder. After careful mixing, portions of the mixture were used to prepare the specimens. The specimens were compressed at a pressure of 5000 kg/cm<sup>2</sup> and were then thermally treated at 180 °C over four hours with a subsequent slow cooling to room temperature. Fig 1 shows the conductivity as a function of cadmium content. The conductivity has a maximum for 1% cadmium content. The peak value of the conductivity is about  $12.5 \times 10^{-5} \text{ ohm}^{-1}\text{cm}^{-1}$ . Fig 2 shows the dependence Card 1/2 of the specific resistance in temperature for a 6% cadmium

SOV/139-59-1-21/34  
Electrical Properties of Selenium with a Cadmium Impurity

content. Up to about 500°C the specific resistance increases, then slightly falls and then increases again up to 1600°C where it reaches a peak value of  $7 \times 10^{-4}$  and then falls off again. This suggests the presence of two peaks. Thermoelectric power measurements have shown a hole-type conductivity. The photosensitivity of the specimens was found to be roughly constant at 100 lux. This effect is summarized in Table 1. Hall effect has not been detected. The temperature dependence of the conductivity cannot at first sight be explained in terms of the band theory.

Card 2/2 There are 3 figures, 1 table and 10 references, 2 of which are English, 1 is a translation from English and 7 are Soviet.

ASSOCIATION: Kiyevskiy Politekhnicheskiy Institut (Kiyev Polytechnical Institute)

SUBMITTED: June 25, 1958

GBYKHMAN, D.S. [deceased]; ROMANKEVICH, V.N.; SIDYAKIN, V.G.

Electric properties of polycrystalline selenium with halogen impurities ( $Br_2$ ,  $Cl_2I_2$ ). *Miz. tver. tela 1 no.2:218-226* F '59.  
(MIRA 12:5)

1. Kiyevskiy politekhnicheskiy institut.  
(Selenium—Electric properties)

24.7700

963.245

AUTHOR:

Sidyakin, V.G.

67297

SOV/181-1-8-2/32

TITLE:

The Electric Properties<sup>1</sup> of Selenium Containing a Gold Impurity<sup>2</sup>

PERIODICAL:

Fizika tverdogo tela, 1959, Vol 1, Nr 8, pp 1172-1175 (USSR)

ABSTRACT:

An analysis of the results of many authors gives the following general conclusions: 1) nonmetallic impurities in general increase selenium<sup>1</sup> conductivity. 2) An insignificant increase in resistivity (by about the tenfold) is for many low-percentage metallic impurities indicative of a low solubility of metals in selenium. 3) The metallic impurities of the respective subgroup of the periodic system of elements increase selenium resistivity the more the higher is the atomic weight of the given element of the subgroup and the greater its atomic radius. 4) High-percentage metallic admixtures in selenium may influence the electric properties in a different way than the same admixtures when present in low percentage. The electric properties of selenium with gold impurities were investigated on samples containing 0.001, 0.005, 0.01, 0.1 and 0.6 wt% of gold in selenium. These samples were 2 by 1 cm large and 1 mm thick. The samples were treated at 160°±1° for 4 hours and then slowly cooled to room temperature. The

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67297

The Electric Properties of Selenium Containing  
a Gold Impurity

SOV/181-1-8-2/32

electric properties were investigated by the probe method and the potentiometric method. After the addition of the gold impurities conductivity of the samples decreased. It is at least at 0.6%. Additional experiments with selenium samples with a gold impurity of 1% showed that conductivity begins to increase when the gold content in selenium is further increased. The temperature dependence of the selenium sample resistivity corresponds to a semiconductor character of the material for a gold content of up to 0.6%, whilst it shows a clearly metallic character with a gold content of 1%. The results concerning samples which contain 1% of gold should be accepted with some reservation because of the separate production and heat treatment of these samples. Measurements of the coefficient of the thermoelectromotive force showed that selenium samples containing gold had an electronic conductivity. The following table contains the values of the coefficient of the thermoelectromotive force for 35°C.

Se + % Au	0.00	0.001	0.005	0.01	0.0	0.6
$\alpha$ mv/ deg	1.1	1.1	1.14	1.19	1.08	0.86

Card 2/3

67297

The Electric Properties of Selenium Containing  
a Gold Impurity

SOV/181- 1 -8-2/32

The temperature dependence of  $\alpha$  does not depend on the gold percentage in Se, and  $\alpha$  increases but little with rising temperature. The results found may well be explained on the basis of the stratified model of hexagonal selenium. According to this model, the admixtures are in the intermediate layers of the so-called "amorphous" selenium. They change the resistivity of these layers. The considerable selenium resistivity decrease with increasing frequency of the alternating current used in measurement is a good proof of the stratified selenium model. The electron character of conductivity is indicative of the formation of a p-n-transition in the production of photocells with an upper gold electrode. There are 2 figures, 3 tables, and 9 references, 5 of which are Soviet. *4*

ASSOCIATION: Politekhnicheskiy institut, Kiyev (Polytechnic Institute, Kiyev)

SUBMITTED: July 4, 1958

Card 3/3

ROMANKEVICH, V.N.; SIDYAKIN, V.G.

Electrical properties of selenium tetrabromide. Izv. vys. ucheb.  
zav.; fiz. no.4:19-20 '59. (MIRA 13:3)

1.Kiyevskiy politekhnicheskiy institut.  
(Selenium bromide--Electric properties)

ROMANKEVICH, V.N.; SIDYAKIN, V.G.

Electric properties of amorphous selenium with an iodine impurity.  
(MIRA 12:4)  
Izv.vya.ucheb.zav.; fiz. no.6:25-32 '59.

1. Kiyevskiy politekhnicheskiy institut.  
(Selenium--Electric properties)

SOV/170-59-6-12/20

24 (3, 6)

AUTHORS: Sidyakin, V.G., Danilov, V.N.

TITLE: Effect of Ductile Deformation on the Hall Constant in Bismuth

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, 1959, Nr 6, pp 84-87 (USSR)

ABSTRACT: Ductile deformations in metals were the subject of studies by many investigators: Frenkel' [Ref 1], Vonsovskiy, Lashko [Ref 2] and Rovinskiy [Ref 3]. One of the authors, V.N. Danilov [Ref 4] arrived at a conclusion that the origination of different thermoelectromotive forces, t.e.m.f., for the same metal is due to changes in energy spectra of collectivized electrons at different degrees of ductile deformation. To check this hypothesis, the authors have experimentally investigated the effect of ductile deformation in bismuth on its Hall constant. The measurements of the Hall e.m.f. were carried out at a constant intensity of magnetic field, equal to 13,000 oersted, in Bi samples which were first deformed by one-sided pressure from 1 to 10 tons (these measurements yielded the value of Hall constant for deformed sample,  $R_d$ ) and then after eliminating internal stresses by annealing in vapor of boiling water (these measurements yielded the value of Hall

Card 1/2

SOV/170-59-6~12/20

Effect of Ductile Deformation on the Hall Constant in Bismuth

constant for the annealed sample which is considered to be equal to that of an undeformed sample,  $R_o$ ). The relationship of the ratio  $R_o/R_d$  on the magnitude of deformation  $\epsilon$  is presented in Graph 1 and Table 1 from which is to be seen that this ratio has a peak value at a relative deformation of 43%. This is explained by the change in the electronic density distribution and in the energy spectrum of collectivized electrons. A further increase in this ratio leads to the break of the sample. The results arrived at can not be generalized to other metals, in view of the special position of bismuth, being a metal of low ductility. There are: 1 graph, 1 table and 5 Soviet references.

ASSOCIATION: Politekhnicheskiy institut (Polytechnical Institute), Kiyev.

Card 2/2

SIDYAKIN, V. G., Cand Phys-Math Sci — (diss) "The Influence of Metallic and Nonmetallic Admixtures on the Properties of Hexagonal Selenium." Leningrad, 1960, 12pp (Ministry of Higher and Secondary Specialist Education RSFSR; Leningrad Polytechnic Institute im M. I. Kalinin), 150 copies, no price given (KL, 21-60, 118)

24.7700  
82908S/120/60/000/02/039/052  
EO41/E421

AUTHORS: Sidyakin, V.G. and Skorik, Ye.T.

TITLE: Measurement of the Active Resistance of Semiconductors 1  
at High Frequency

PERIODICAL: Pribory i tekhnika eksperimenta, 1960, Nr 2,  
pp 141-143 (USSR)

ABSTRACT: It is shown how the 200 Mc/s Q-meter type UK-1 can be  
used to measure the real component of impedance of  
semiconductor materials. Two precautions are taken:  
1. the instrument is switched on for 2 to 3 hours  
before use; 2. the multiplier of the Q-meter itself  
does not change position. A substitution method is  
used whereby the introduction of the sample into a  
tuned circuit mounted on the Q-meter is compensated for  
by a readjustment of the tuning capacitor and the new  
value of Q is noted. Equations (1) to (3') refer to  
the case of series introduction. In practice,  
parallel connection to a special sample-holder is  
preferred and the formula for equivalent shunt  
resistance is Eq (1). Measurements have been made on  
selenium, both pure (curve 1) and contaminated with +

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82908  
S/120/60/000/02/039/052  
E041/E421

Measurement of the Active Resistance of Semiconductors at High Frequency

chlorine (curve 2), with the results shown in Fig 3. The results agree with those reported in Ref 7. There are 3 figures and 8 references, 6 of which are Soviet and 2 English.

ASSOCIATION: Kiyevskiy politekhnicheskiy institut  
(Kiyev Polytechnical Institute)

SUBMITTED: January 25, 1959

4

Card 2/2

84611

S/181/60/002/010/038/051  
B019/B056

24,7700(1043,1143,1559)

AUTHORS:

Kalabukhov, N. P. and Sidyakin, V. G.

TITLE:

The Measurement of the Mobility of Photocurrent Carriers  
in Additionally Colored KCl-Crystals

PERIODICAL: Fizika tverdogo tela, 1960, Vol. 2, No. 10, pp. 2589 - 2593

TEXT: The authors investigated the mobility of the photocurrent carriers in additionally colored KCl-crystals at room temperature and "space" irradiation (which means without additional irradiation). For purposes of measurement a method was employed, which is described as the method of "induced d.c.-current field". It consists essentially in measuring the Hall angle, for which a formula given by Shockley (Ref.5) is written down. After a detailed discussion of the experimental arrangements shown in Figs. 1 and 2, the authors discuss the results given in the Table. The mobility values are between 1.50 and 1.36  $\text{cm}^2/\text{v.sec}$ . The authors interpret the results obtained here by means of the polaron theory introduced by S. I. Pekar and for the polaron mass they obtain

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84611

The Measurement of the Mobility of Photocurrent Carriers in Additionally Colored KCl-Crystals

9/181/60/002/010/058/051  
B019/B056

$M = 163 \text{ m}_\text{s}$ . From the polaron theory a mobility of photocurrent carriers of  $3.01 - 3.23 \text{ cm}^2/\text{v}\cdot\text{sec}$  is obtained, which agrees well with the experimental data. The existence of impurity scattering centers is given as a reason for the lower experimental values obtained. Furthermore, a mean lifetime of photocurrent carriers of  $1.36 - 1.78 \cdot 10^{-13} \text{ sec}$  and a mean free length of path of  $10.8 - 12.3 \text{ \AA}$  was calculated. This is in agreement with the conception that the photocurrent carriers in a KCl-crystal are to be considered as polarons. S. V. Tyablikov is mentioned. There are 3 figures, 1 table, and 7 references: 4 Soviet and 3 US.

ASSOCIATION: Politekhnicheskiy institut Kiyev (Polytechnic Institute, Kiyev)

SUBMITTED: February 16, 1960 (initially), May 3, 1960 (after revision)

Card 2/2

S/139/60/000/03/033/045

E140/E335

V.G.

AUTHORS: Romankevich, V.N. and Sid'yakin, V.G.

TITLE: Variability of Electrical Parameters of Selenium Samples  
with Bromine Impurity in Dependence on Storage Time

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Fizika,  
1960, No 3, pp 180 .. 184 (USSR)

ABSTRACT: A large number of samples with various bromine contents  
were stored for 50 months in darkness at room temperature  
with free air circulation. It was found that the bromine  
content was markedly reduced but not to zero, so that the  
electrical properties changed over very wide ranges,  
depending on the initial concentration.  
There are 5 figures, 3 tables and 5 references, 1 of  
which is German and 4 are Soviet.

ASSOCIATION: Kiyevskiy politekhnicheskiy institut  
(Kiev Polytechnical Institute)

SUBMITTED: July 6, 1959

✓ B

Card1/1

89704

S/139/61/000/001/012/018  
- E032/E514

24,7700 (1043,1143,1469)

AUTHORS: Romankevich, V. N. and Sidyakin, V. G.

TITLE: The Electrical Properties of Selenium Specimens with Chlorine Impurity, as Functions of Storage Time

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Fizika, 1961, No.1, pp.130-133

TEXT: A study of the effect of chlorine on the electrical properties of selenium is reported. The selenium specimens with a chlorine impurity were prepared by introducing selenium tetrachloride into amorphous selenium in powder form. The mixture was then compressed and subjected to heat treatment in sealed-off containers at  $t = 180^\circ\text{C}$  with subsequent cooling to room temperature. The selenium tetrachloride was obtained as follows. The selenium (in powder form) was placed in a tube through which chlorine was passed. The selenium was dried by concentrated sulphuric acid prior to the chlorination. On completion of the chlorination process  $\text{SeCl}_4$  was transferred by distillation into a neighbouring part of the tube, after which the surplus chlorine was removed by blowing dry air over the specimen. The selenium tetrachloride was

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## The Electrical Properties of . . . .

S/139/61/000/001/012/018  
E032/E514

Table 3

$^{36}\text{Cl}$	$1, \text{C}^\circ$	$42^\circ$	$51^\circ$	$60^\circ$	$70^\circ$
0,001		$7,94 \cdot 10^{16}$	$1,07 \cdot 10^{16}$	$1,15 \cdot 10^{14}$	$3,24 \cdot 10^{14}$
0,01		$4,57 \cdot 10^{16}$	$4,90 \cdot 10^{16}$	$3,71 \cdot 10^{14}$	$8,13 \cdot 10^{14}$
0,1		$3,55 \cdot 10^{15}$	$3,89 \cdot 10^{15}$	$2,29 \cdot 10^{13}$	$3,31 \cdot 10^{13}$
0,25		$2,14 \cdot 10^{17}$	$2,19 \cdot 10^{17}$	$2,24 \cdot 10^{17}$	$3,02 \cdot 10^{17}$
0,5		$7,24 \cdot 10^{14}$	$8,91 \cdot 10^{14}$	$9,33 \cdot 10^{14}$	$1,55 \cdot 10^{14}$
1		$1,66 \cdot 10^{17}$	$2,24 \cdot 10^{17}$	$2,75 \cdot 10^{16}$	$4,68 \cdot 10^{17}$
2		$9,33 \cdot 10^{15}$	$9,77 \cdot 10^{15}$	$8,91 \cdot 10^{15}$	$1,44 \cdot 10^{16}$
3		$2,04 \cdot 10^{16}$	$2,09 \cdot 10^{16}$	$2,75 \cdot 10^{16}$	$6,46 \cdot 10^{16}$
4		$3,02 \cdot 10^{16}$	$8,71 \cdot 10^{15}$	$7,41 \cdot 10^{15}$	$1,48 \cdot 10^{16}$

Card 3/4

89704

S/139/61/000/001/012/018  
E032/E514

## The Electrical Properties of . . . . .

и сопротивл.  
см<sup>2</sup>/вт

Таблица 4 Table 4

% Cl	t, C°	42°	51°	60°	70°
0.001		$15.8 \cdot 10^{-2}$	$10.9 \cdot 10^{-2}$	$89.4 \cdot 10^{-2}$	$26.5 \cdot 10^{-2}$
0.01		$65.0 \cdot 10^{-2}$	$59.5 \cdot 10^{-2}$	$72.6 \cdot 10^{-2}$	$30.1 \cdot 10^{-2}$
0.1		$0.34 \cdot 10^{-2}$	$0.19 \cdot 10^{-2}$	$0.72 \cdot 10^{-2}$	$0.51 \cdot 10^{-2}$
0.25		$2.26 \cdot 10^{-2}$	$2.13 \cdot 10^{-2}$	$2.42 \cdot 10^{-2}$	$1.98 \cdot 10^{-2}$
0.5		$2.80 \cdot 10^{-2}$	$2.19 \cdot 10^{-2}$	$3.12 \cdot 10^{-2}$	$2.22 \cdot 10^{-2}$
1		$4.25 \cdot 10^{-2}$	$3.5 \cdot 10^{-2}$	$3.09 \cdot 10^{-2}$	$1.94 \cdot 10^{-2}$
2		$0.14 \cdot 10^{-2}$	$0.17 \cdot 10^{-2}$	$0.24 \cdot 10^{-2}$	$0.17 \cdot 10^{-2}$
3		$0.37 \cdot 10^{-2}$	$0.22 \cdot 10^{-2}$	$0.22 \cdot 10^{-2}$	$0.20 \cdot 10^{-2}$
4		$0.19 \cdot 10^{-2}$	$0.15 \cdot 10^{-2}$	$0.01 \cdot 10^{-2}$	$0.56 \cdot 10^{-2}$

In these tables n is the carrier concentration and u is the mobility. There are 4 figures, 4 tables and 6 references: 4 Soviet, 2 non-Soviet.

ASSOCIATION: Kiyevskiy politekhnicheskiy institut (Kiyev Polytechnical Institute)

SUBMITTED: February 19, 1960

Card 4/4

9,4177 (1035,1051)

26.2/2/1

AUTHOR:

Sidyakin, V. G.

40796  
S 131/61/003/011/042/056  
B104/B\*02

TITLE:

Mobility of photocurrent carriers in amorphous selenium

PERIODICAL:

Fizika tverdogo tela, v. 3, no. 11, 1961, 3527-3528

TEXT: A. F. Ioffe (FTT, I, 1959) assumed that the mechanism of carrier mobility in semiconductors with low mobility (mean free path < lattice constant) is determined by the short-range order which is maintained if the semiconductor is converted to the amorphous or to the liquid state. Assuming that the behavior of hexagonal selenium can substantially be explained by the short-range order, it follows that the carrier mobility in selenium monocrystals must be of the same order of magnitude as in amorphous selenium. To check this conclusion the carrier mobility in amorphous selenium excited by light was measured. The measuring device had been described earlier (N. P. Kalabikhov, V. G. Sidyakin, FTT, II, 1960). The pure selenium (99.9 %) used was sublimed in vacuum. the specimens were

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X

59795

S:131/6/003/011/042/056

B:04/B:02

Mobility of photocurrent carriers...

parallelepipeds (12.5\*4.5\*2.5 mm) and were irradiated with about 2200 phot. The mobility was computed using the relation

$$\mu = \frac{V_T/D}{V_H/L} \cdot 10^8 (\text{cm}^2/\text{sec. v})$$

D is the thickness of the specimen in cm, L the length of the electrode in cm, H the magnetic field strength in oersted.  $V_T$  the potential at the electrodes,  $V_H$  the Hall potential. The measuring error was about 12 %. The carrier mobility was found to be  $\sim 0.4 \text{ cm}^2/\text{sec. v}$ . This value agrees fairly well with that for hexagonal selenium monocrystals. There are 1 table and 4 references: 3 Soviet and 1 non-Soviet.

ASSOCIATION: Kiyevskiy ordena Lenina politekhnicheskiy institut  
(Kiyev "Order of Lenin" Polytechnic Institute)

SUBMITTED: July 5, 1961

Card 2/2

X

S/159/62/000/002/004/028  
E073/E355

AUTHOR: Sidyakin, V.G.

TITLE: Influence of iodine on the structure of selenium

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Fizika,  
no. 2, 1962, 25 - 27

TEXT: The investigation was by the method of diffusion of iodine into selenium at room temperature and by X-ray structural analysis. The influence of various iodine-admixture concentrations on the crystallization of selenium was investigated:  
a) applying a field of 200 V/cm for 10 days - no iodine diffusion  
b) due to the effect of the field was observed;  
b) long-term (10 months) iodine diffusion at room temperature - iodine was found to diffuse into selenium and the presence of iodine produced crystallization, even at room temperature.  
A series of specimens containing 0, 0.5 and 5% I in Se were stored for 10 months in air without access of moisture or light and were then subjected to X-ray analysis. The Debye patterns showed that: 1) iodine penetrated the selenium lattice but there was a limit of solubility of iodine in selenium;

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S/159/62/000/002/004/028  
E073/E355

Influence of iodine ....

2) introduction of iodine affected the grain size, which increased on introducing iodine but decreased with increasing iodine content; the crystallization time was the same for all the specimens investigated. 3) Additional tests confirmed that iodine only partly penetrates the lattice and considerable quantities of iodine leave the selenium entirely, even at room temperature; a specimen containing initially 10% I contained less than 5% after three months storage. ✓

ASSOCIATION: Kiyevskiy ordena Lenina politekhnicheskiy institut (Kiyev Order of Lenin Polytechnical Institute)

SUBMITTED: October 20, 1960 (initially)  
March 20, 1961 (after revision)

Card 2/2

SIDYAKIN, V.G. [Sydiakin, V.H.]; IVAKHnenko, G.K. [Ivakhnenko, H.K.]

Electric properties of selenium with admixtures of bismuth and tin.  
Ukr. fiz. zhur. 8 no.6:103-704 Je '63. (MIRA 16:7)

1. Kiyevskiy ordena Lenina politekhnicheskiy institut.  
(Selenium--Electric properties)

TKACH, V.K.; SIDYAKIN, V.V.

Physicochemical and structural properties of monomolecular protein layers after irradiation. Radiobiologija 1 no.5:641-644 '61.  
(MIRA 14:11)

1. Khar'kovskiy institut meditsinskoy radiologii i Khar'kovskiy  
gosudarstvennyy universitet imeni A.M.Gor'kogo.  
(BLOOD PROTEINS (GAMMA RAYS—PHYSIOLOGICAL EFFECT)